

Work Order ID 154274***154274***

Page 1

Wednesday, December 07, 2016 11:08:43 A

Item ID: 644.4122

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: EC145 Fwd Crosstube Bushings

Start Date: 12/23/2016 Start Qty: 7.00 ***7***

Cust Item ID:

Required Date: 12/23/2016 Req'd Qty: 7.00 ***7***

Customer:

Reference:

Approvals:

Process Plan:

DAS
21
9-89

Date:

DEC 07 2016

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

644.4100

REV F2

110

0.00

110

HAAS CNC VERTICAL MACHINING #1

Lathe Conv

Memo

0.15

Conventional Lathe

1-TURN AS PER DWG

DWG REV: **F**

****CHECK NOTE 7*****

2- deburr and break all sharp edges

DAS
32
9-89

16-12-13

120

0.00

120

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.10

Quality Control

DAS
32
9-89

16-12-13

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : _____			

Work Order ID 154274

Wednesday, December 07, 2016 11:08:43 A

154274

Page 2

Item ID: 644.4122 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: EC145 Fwd Crosstube Bushings
Start Date: 12/23/2016 Start Qty: 7.00 ***7*** Cust Item ID:
Required Date: 12/23/2016 Req'd Qty: 7.00 ***7*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

QC8- Inspect parts - second check

0.00

130

QC

Memo

0.02

Quality Control

D.A. 16-12-14

7

Ø

140

Outsource process-Anodize per QSI017 4.1.10.1

0.00

140

Outsource4

Memo

70.00

Outsource process - Anodize

Issue P/O to ATG :

34644

1- Black Anodize as per Dwg

Certification of Conformity is required

7

DEC 15 2016

DAS
13
9-89

150

Receive & Inspect for Damage & Mat'l Certs

0.00

150

Packaging

Memo

0.02

Packaging

7x SP16-12-22

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause			FAULT CATEGORY		
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

Work Order ID 154274

Wednesday, December 07, 2016 11:08:43 A

154274

Page 3

Item ID: 644.4122 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: EC145 Fwd Crosstube Bushings
Start Date: 12/23/2016 Start Qty: 7.00 ***7*** Cust Item ID:
Required Date: 12/23/2016 Req'd Qty: 7.00 ***7*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
155	QC5- Inspect part completeness to step on W/O	0.00							
155	<i>QC6</i>					<i>⑦</i>	<i>16/12/22</i>		<i>DAS 9 9-89</i>
QC	Memo	0.02							
Quality Control									
180	Identify as per dwg & Stock Location: <i>CCK101</i>	0.00							
180									<i>JAN 04 2017</i>
Packaging	Memo	0.01				<i>7x</i>			<i>DAS 26 9-89</i>
Packaging	***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***								
190	QC21- Final Inspection - Work Order Release	0.00							
190							<i>DAS 21 9-89</i>	<i>JAN 09 2017</i>	
QC	Memo	0.12							
Quality Control									<i>DAS 21 9-89</i>

JAN 04 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
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				Completed By	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Wednesday, December 07, 2016 11:08:46 AM

Page 1 /

Work Order ID: 154274

154274

Parent Item: 644.4122

644 4122

Parent Item Name: EC145 Fwd Crosstube Bushings

Start Date: 12/23/2016

Required Date: 12/23/2016

Start Qty: 7.00

Required Qty: 7.00

Comments: IPP REV:A NEW ISSUE 16-12-07 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6R0.625		Purchased	No				f	27.3600		2.455895			DAS
M6061T6R0 625									**			16-12-17	32 9-89
6061-T6 Round Bar .625"													

Location

Loc Qty

Loc Code

MAT005

24

m135779

24

MAT012

3.36

m135377

3.36

2.594'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
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Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER : _____			

DART AEROSPACE LTD	Work Order:	154274
Description: EC145 Fwd Crosstube Bushings	Part Number:	644.4122
Inspection Dwg: 644.4100 Rev: F2		Page 1 of 1

[illegible]

Engineering Approval: (if necessary)		Date:
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APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 04489

SHEET 1 OF 1

DWG NO. 644,4100

REV: F

PREPARED BY: J. BECKER

DATE: 04/08/14

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: PIVOT STEP ASSY

APPROVED BY:

ENGR

MFG

QC

EFF:

NEXT ORDER

TRANSACTION
A-ADD
R-REVISE

CODES (TC)
C-CREATE
D-DELETE

REASON: UPDATE NOTE 4, FINISH SPECIFICATION.

NOTES

1. IDENTIFY ALL PARTS IN ACCORDANCE WITH MPP-120
2. MATERIAL: 2024-T3 ALUMINUM
3. MATERIAL: 6061-T6 ALUMINUM
4. FINISH IAW MPP-172 SECTION 2.1, SECTION 3.1, SECTION 4.1, SECTION 5.2.
5. MATERIAL: MDS-FILLED NYLON 6/6 SHEET, CUT OD CIRCLE USING 2" GASKET PUNCH, CUT ID HOLE USING 1/4" GASKET PUNCH
6. MATERIAL: MDS-FILLED NYLON 6/6 SHEET, CUT OD CIRCLE USING 2" GASKET PUNCH, CUT ID HOLE USING 5/16" GASKET PUNCH
7. DIMENSION VALUE HAS FINISH COATING OF 6-10 MIL (.006-.010) TAKEN INTO CONSIDERATION
8. ADD ADDITIONAL WASHER UNDERNEATH CASTLE NUTS IF NECESSARY.
9. FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III CLASS 2, COLOR BLACK.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 154274 MJS
16-12-07

SHEET 1, NOTES IS:

DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUC ☐ ICA ☐ BOM

CHANGE CATEGORY
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED
☐ YES ☒ NO

APICAL
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04286

SHEET 1 OF 1

DWG NO. 644.4100

REV: F

PREPARED BY J. SOTO

DATE: 12/04/2013

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: PIVOT STEP ASSY

APPROVED BY: ENGR *[Signature]*

MFG *[Signature]*

QC

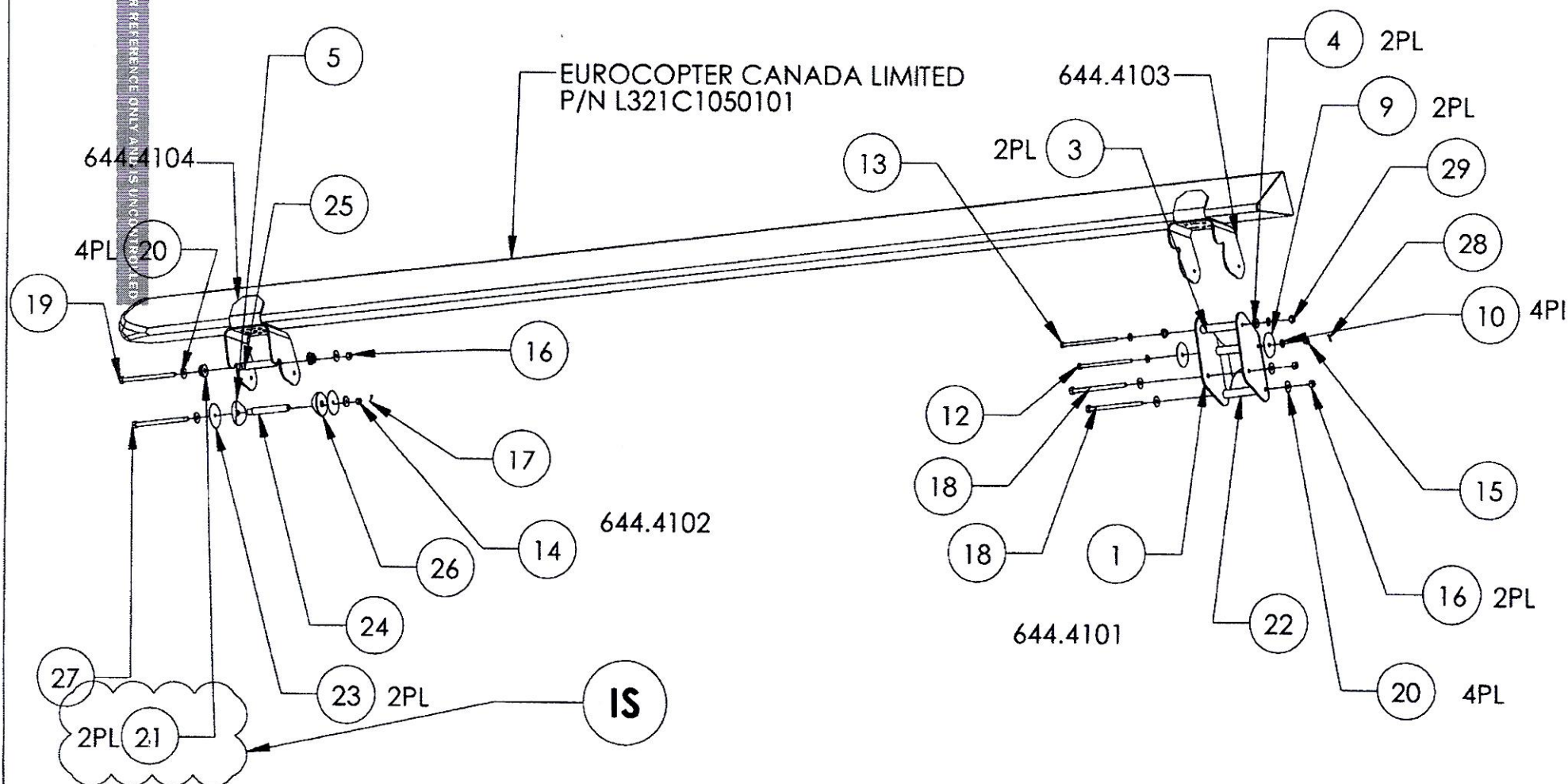
EFF. NEXT ORDER

TRANSACTION CODES (TC):
A-ADD
R-REVISE
C-CREATE
D-DELETE

REASON: REVISED F/N CALL OUT FROM 22 TO 21

ECR: 13-151

SHEET 1, ZONE D1 IS:



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

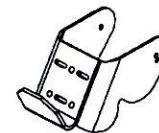
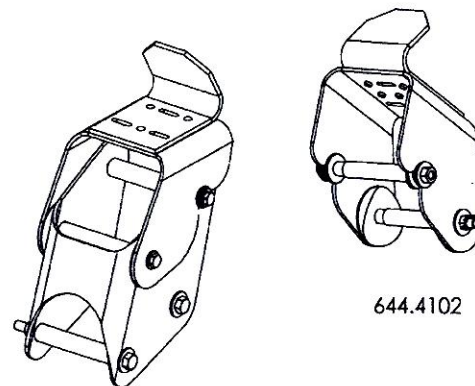
DER REVIEW REQUIRED

☐ YES ☒ NO

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NOTES:

1. IDENTIFY ALL PARTS IN ACCORDANCE WITH MPP-120
- 2 MATERIAL: 2024-T3 ALUMINUM
- 3 MATERIAL: 6061-T6 ALUMINUM
- 4 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III CLASS 2. COLOR BLACK; PRETREAT PR-148 ADHESION PROMOTER, PRIME WITH DESOTO 515X349 IAW BMS 10-79 TYPE III CLASS A GRADE A, POLYURETHANE PAINT CARDINAL 6409-RD03-S WITH CATALYST 340HP.
- 5 MATERIAL: MDS-FILLED NYLON 6/6 SHEET, CUT OD CIRCLE USING 2" GASKET PUNCH, CUT ID HOLE USING 1/4" GASKET PUNCH
- 6 MATERIAL: MDS-FILLED NYLON 6/6 SHEET, CUT OD CIRCLE USING 2" GASKET PUNCH, CUT ID HOLE USING 5/16" GASKET PUNCH
- 7 DIMENSION VALUE HAS FINISH COATING OF 6-10 MIL (.006-.010) TAKEN INTO CONSIDERATION
8. ADD ADDITIONAL WASHER UNDERNEATH CASTLE NUTS IF NECESSARY.
- 9 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III CLASS 2, COLOR BLACK.

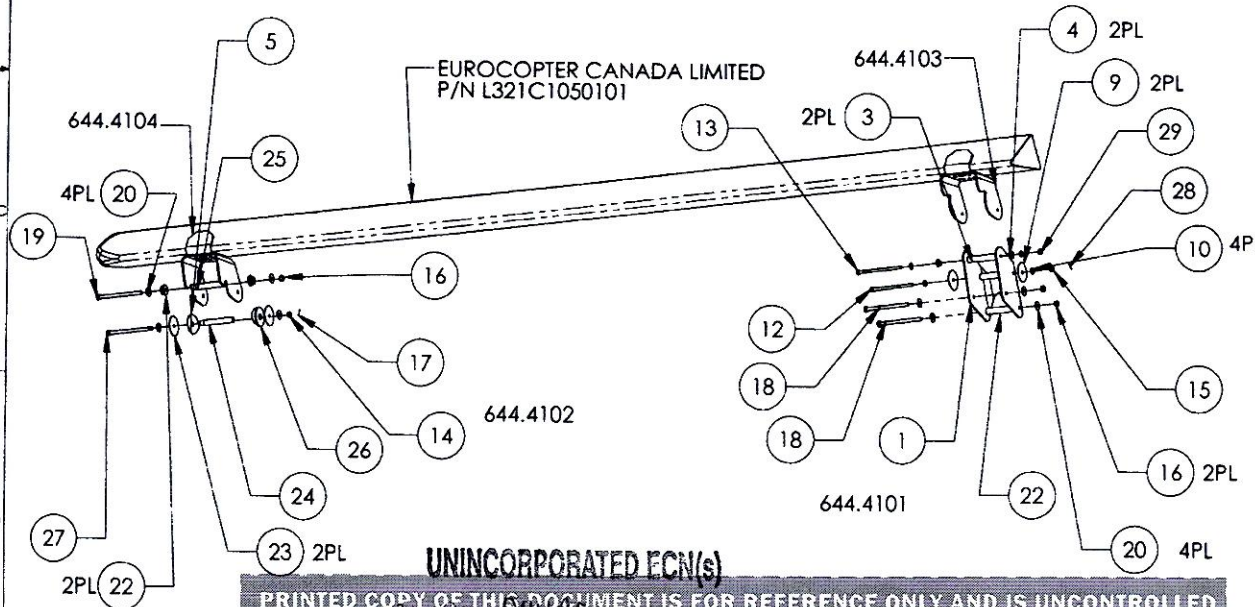


644.4103

644.4104

644.4102

644.4101



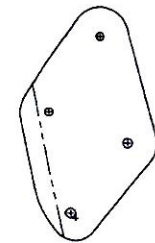
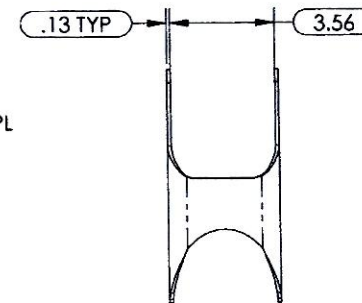
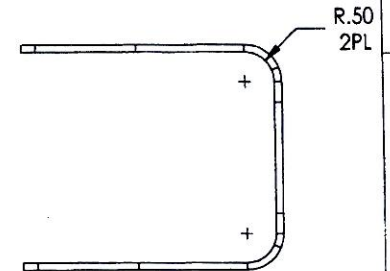
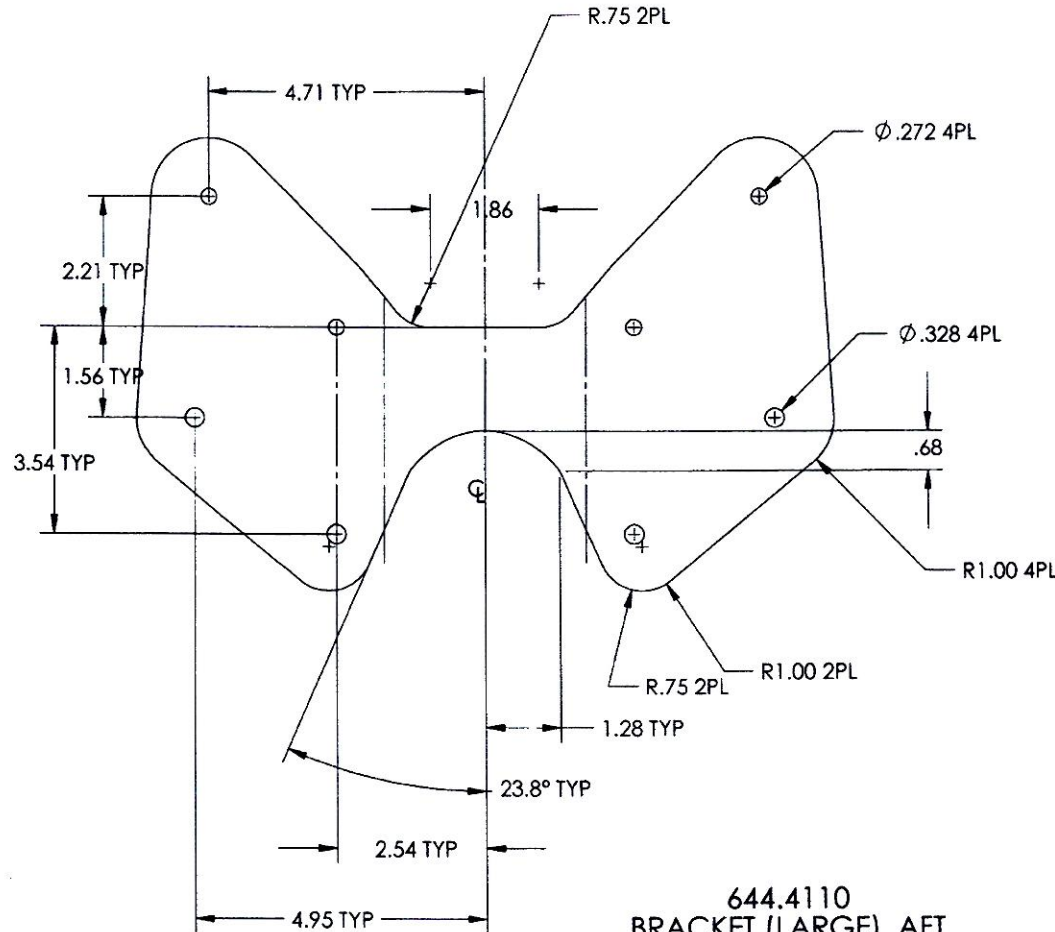
REV.	DESCRIPTION	DATE	APPROVED
A	INCORPORATED ECN 01310, 01322, 01332 & 01357	11-22-08	S. JOSEPH
B	INCORPORATED ECN 01310, 01418, 01796 & 01838	05-21-07	P. BRAVO
C	INCORPORATED ECN 01708, 02326, 03022	12-14-10	P. BRAVO
D	INCORPORATED ECN 03111, 03113, 03208, & 03740	12-10-12	P. BRAVO
E	INCORPORATED ECN 03941	06-19-13	P. BRAVO
F	INCORPORATED ECN 04004	7-29-13	P. BRAVO

QTY	REV	PART #	DESCRIPTION	MAT'L	SPEC.
1	29	601.3273	LOCKNUT FULL	MS21044N4	
1	28	601.2640	COTTER PIN	MS24665-132	
1	27	601.2328	BOLT, HEX	AN5-45	
1	26	644.4124	WASHER, PIVOT	△△△	
1	25	644.4123	FWD CROSSTUBE BUSHING	△△△	
1	24	644.4122	FWD CROSSTUBE BUSHING	△△△	
2	23	644.4121	WASHER, NYLON	△△△	
1	22	644.4120	SPACER, CROSS-TUBE	△△△	
2	21	644.4119	SPACER, FWD STOP	△△△	
4	20	601.2110	WASHER, FLAT THICK	MS114WC 05638	
1	19	601.2250	BOLT, HEX	AN5-50	
2	18	601.2249	BOLT, HEX	AN5-43A	
1	17	601.3315	COTTER PIN	MS24665-210	
1	16	601.3272	LOCKNUT FULL	MS21044N5	
1	15	601.1435	NUT, HEX CASTLE FULL	AN310-4	
1	14	601.3270	NUT, HEX CASTLE FULL	AN310-5	
1	13	601.3407	BOLT, HEX	AN4-47A	
1	12	601.2434	BOLT, HEX	AN4-45	
6	11	601.2326	RIVET, COUNTERSUNK	MS20426AD5-8	
4	10	601.0863	WASHER, THICK	MS114WC 04638	
2	9	644.4118	WASHER, NYLON	△△△	
1	8	644.4117	BRACKET, FWD PIVOT	△△△	
1	7	644.4116	BRACKET (SMALL), FWD	△△△	
1	6	644.4115	BRACKET (SMALL), AFT	△△△	
1	5	644.4114	WASHER, PIVOT	△△△	
2	4	644.4113	SPACER, STOP	△△△	
2	3	644.4112	SPACER	△△△	
1	2	644.4111	BRACKET, AFT PIVOT	△△△	
1	1	644.4110	BRACKET (LARGE), AFT	△△△	
1		644.4104	FWD BRACKET ASSY		
1		644.4103	AFT BRACKET ASSY		
1		644.4102	PIVOT STEP ASSY		
1		644.4101	PIVOT STEP ASSY		

QTY	REV	PART #	DESCRIPTION	MAT'L	SPEC.
1		644.4104	FWD BRACKET ASSY		
1		644.4103	AFT BRACKET ASSY		
1		644.4102	PIVOT STEP ASSY		
1		644.4101	PIVOT STEP ASSY		

ORIGINAL DATE: 08-01-05	CHECKED: S. JOSEPH	APICAL INDUSTRIES
DRAWN BY: S. JOSEPH	APPROVAL: S. JOSEPH 08-29-05	2608 TEMPLE HEIGHTS DR.
CONTRACT NO:		OCEANSIDE, CA 92056-3512 (760)724-5308
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.03 3 PLACE DECIMALS ±.010 ANGLES ±.5°	SHEET: 8	CAGE CODE: 07MA26
	DWG. NO: 644.4100	REV: F
	SCALE: NONE	SHEET: 1 OF 16

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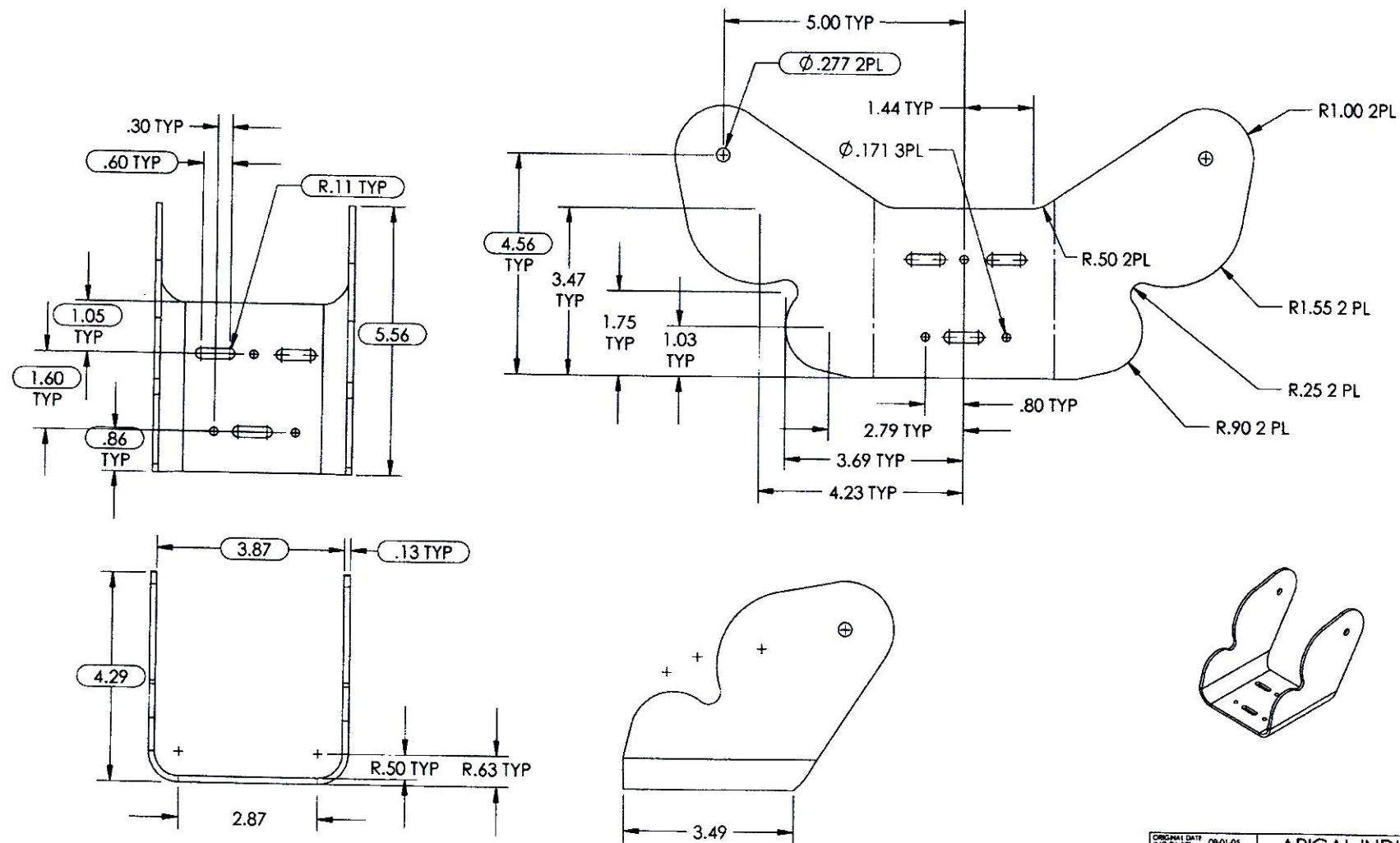


644.4110
BRACKET (LARGE), AFT

PRINTED COPY OF THIS DOCUMENT IS FOR REFERENCE ONLY AND IS UNCONTROLLED

ORIGINAL DATE 08-01-05	APICAL INDUSTRIES		
DRAWN BY J. JOSEPH	2608 TEMPLE HEIGHTS DR.		
DRAWING APPROVAL J. JOSEPH 08-29-05	OCEANSIDE, CA. 92056-3512 (760)724-5300		
CONTRACT NO.	PIVOT STEP ASSY		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.03 3 PLACE DECIMALS ±.010 ANGLES ±.5°	SET / CAGE CODE B 07MA26	DWG. NO. 644.4100	REV. F
SCALE NONE		SHEET 2 OF 16	

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644.4111
BRACKET, AFT PIVOT

ORIGINAL DATE: 08-01-05		APICAL INDUSTRIES	
DRAWN BY: J. JOSEPH		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: J. JOSEPH		OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAWING APPROVAL: J. JOSEPH 08-27-05		PIVOT STEP ASSY	
CONTRACT NO.		REV. F	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACES DECIMALS ±.03 2 PLACES DECIMALS ±.010 1 PLACE DECIMALS ±.015 ANGLES 2°		SHEET 3 OF 16	

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.06 X 45.0°

3.54 $\triangle 7$

$\phi .51$
TYP $\phi .63$

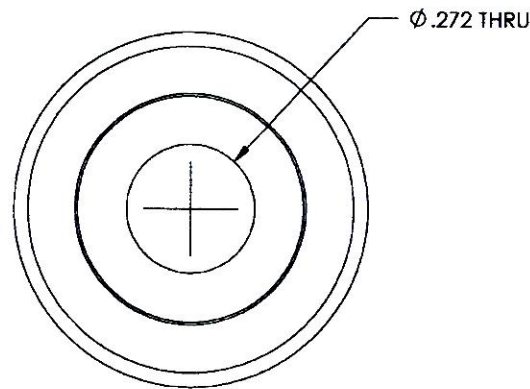
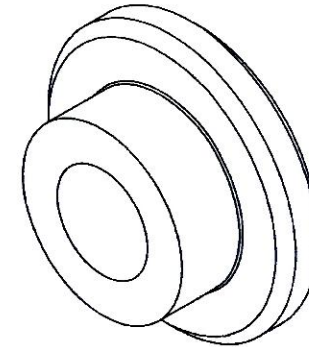
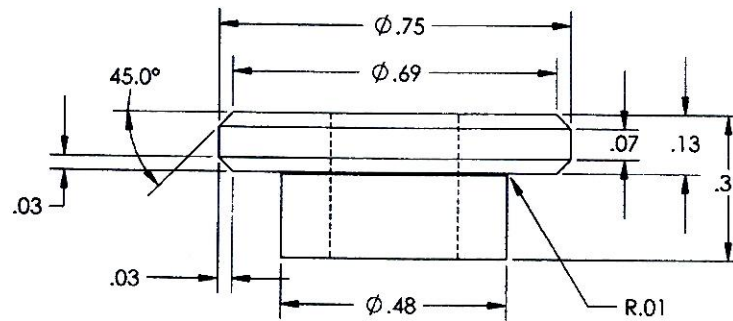
$\phi .272$ THRU

644.4112
SPACER

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ORIGINAL DATE (MM-DD-YY)	06-01-05	APICAL INDUSTRIES	
DRAWN BY	CHECKER	2608 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL	S.JOSEPH	OCEANSIDE, CA. 92056-3512 (760)724-5300	
CONTRACT NO.		PIVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .03$ 3 PLACE DECIMALS $\pm .010$ ANGLES $\pm .5^\circ$	SRT B	CAGE CODE 07AM26	DWG. NO. 644.4100
		SCALE NONE	REV. T
			SHEET 4 OF 16

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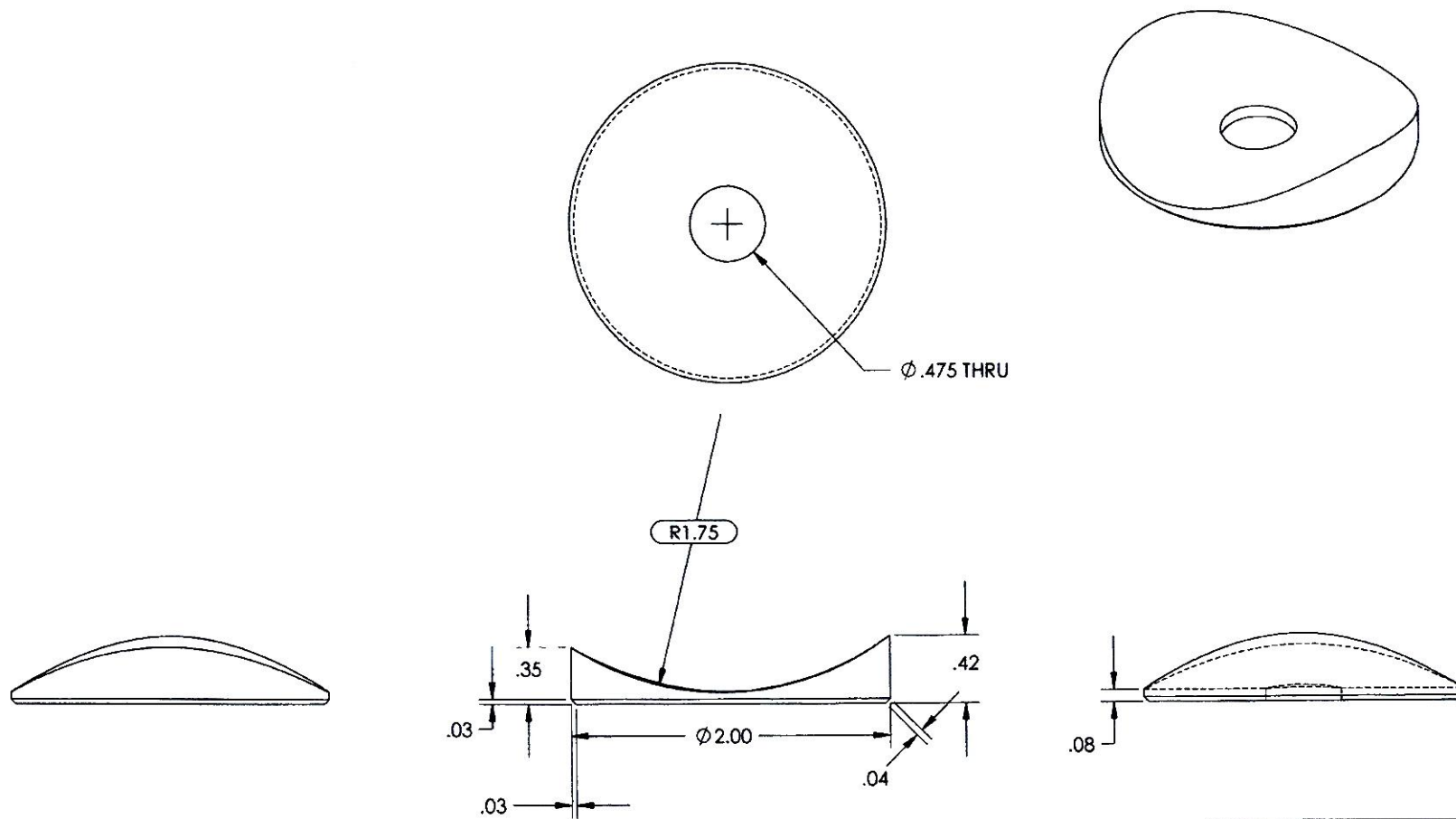


644.4100
SPACER, STOP

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ORIGINAL DATE 09-01-05		APICAL INDUSTRIES	
DRAWN BY: S. JOSEPH		2608 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL: S. JOSEPH 08-21-05		OCEANSIDE, CA. 92056-3512 (760)724-5300	
CONTRACT NO.		PIVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ±.003 2 PLACE DECIMALS ±.006 ANGLES ±.5°		SET: B	REV: F
		CAD CODE: 07M26	DWG. NO: 644.4100
		SCALE: NONE	SHEET: 5 OF 16

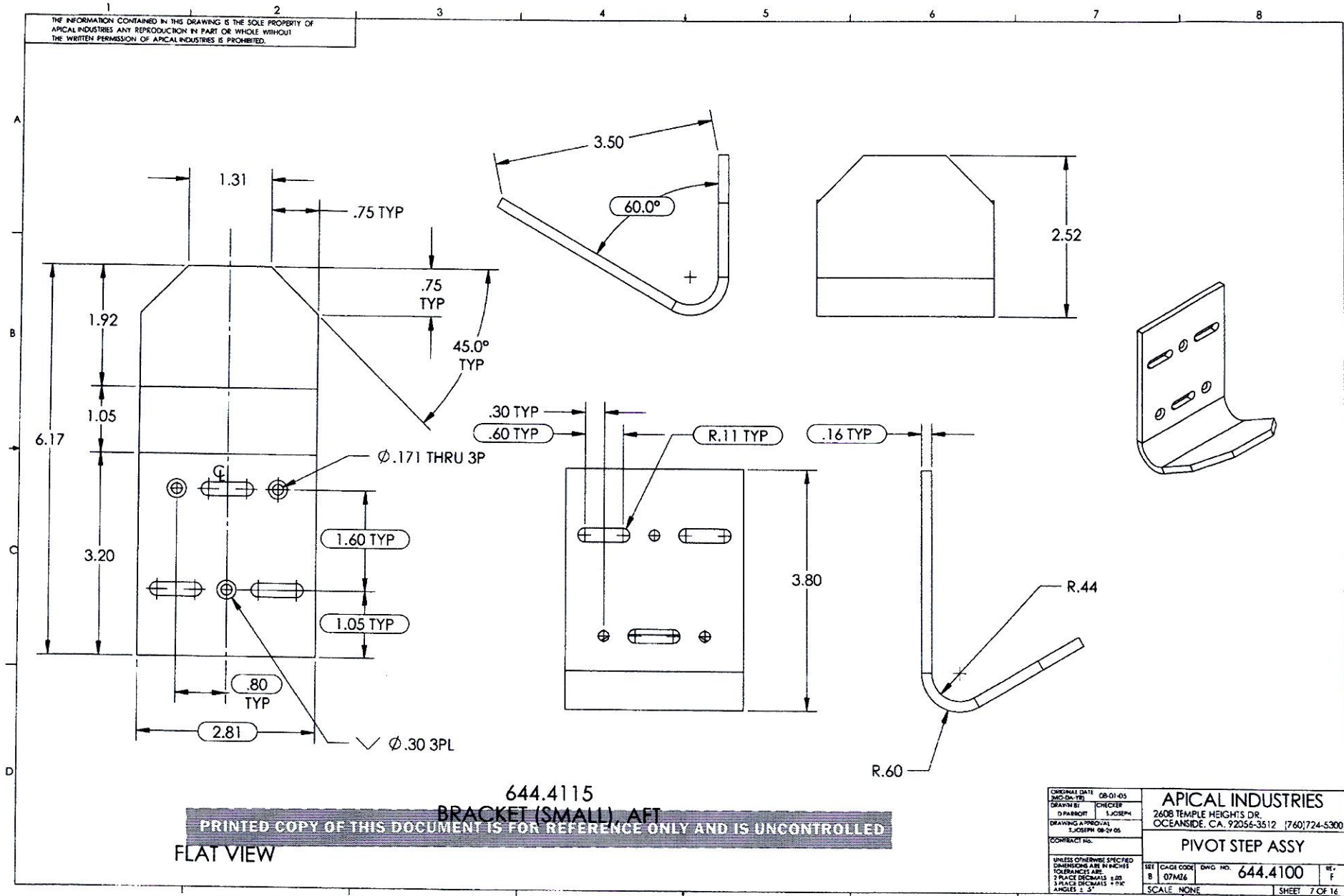
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644.4114
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ORIGINAL DATE 08-01-05	APICAL INDUSTRIES	
DRAWN BY D. PARROTT	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300	
CHECKED S. JOSEPH	PIVOT STEP ASSY	
DRAWING APPROVAL S. JOSEPH 08-29-05	SIZE 8	SCALE NONE
CONTRACT NO.	QAGE CODE 07M26	DWG. NO. 644.4100
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DIMENSIONS ARE 3 PLACE DECIMALS ±.010 ANGLES ±.5°	REV. F	SHEET 4 OF 16

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644.4116
BRACKET (SMALL) FWD

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ORIGINAL DATE: 08-01-05
DRAWN BY: J. JOSEPH
CHECKED BY: S. JOSEPH
DRAWING APPROVAL: S. JOSEPH 08-29-05
CONTRACT NO.:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS ± .03
3 PLACE DECIMALS ± .010
ANGLES: ± 3°

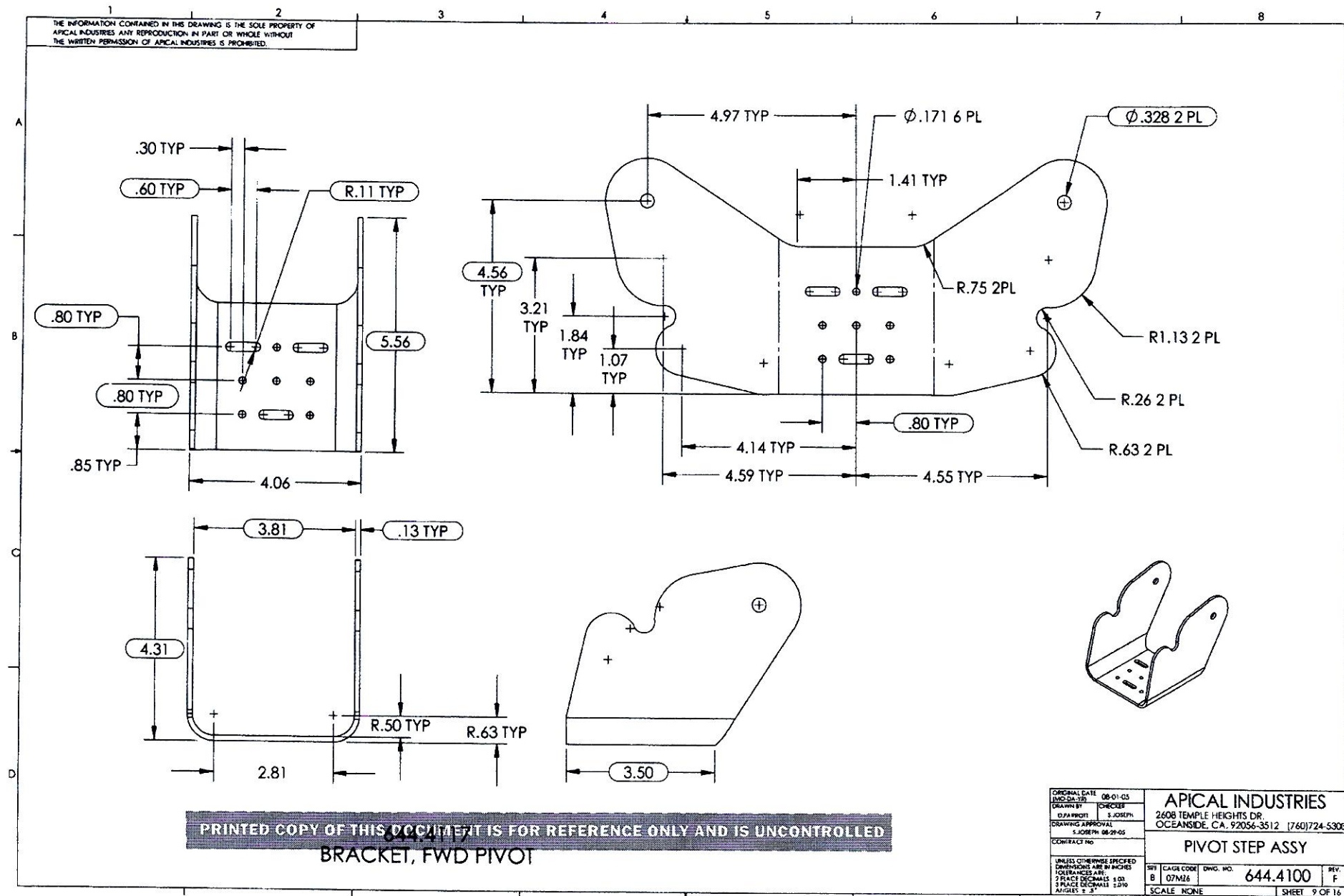
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760) 724-5311
PIVOT STEP ASSY
SHEET 8 OF 11

BRACKET (SMALL), FWD

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ORIGINAL DATE (M/D/YR)	08-01-05	APICAL INDUSTRIES	
DRAWN BY	POCSEER	2608 TEMPLE HEIGHTS DR.	
DATE	07-29-05	OCEANSIDE, CA. 92056-3312 (760)724-5300	
DRAWING APPROVAL			
2 JOSEPH	06-29-05		
CONTRACT NO.		PVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
TOLERANCES ARE:			
1 FRACTIONS: .001			
2 DECIMALS: .010			
3 PLACE DECIMALS: .001			
ANGLES: .5			
SER.	CASH CODE	DWG. NO.	REV.
B	07MZE	644.4100	
SCALE		SHEET 8 OF 16	

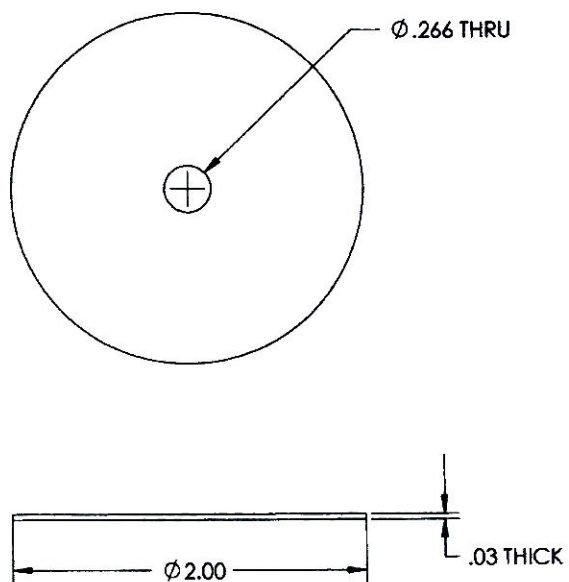
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ORIGINAL DATE 08-01-05		APICAL INDUSTRIES	
DRAWN BY J. JOSEPH		2608 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL J. JOSEPH 08-29-05		OCEANSIDE, CA. 92056-3512 (760)724-5309	
CONTRACT NO.		PIVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.03 3 PLACE DECIMALS ±.010 ANGLES ±.5°		SHEET 9 OF 16	REV. F
SCALE NONE		DWG. NO. 644.4100	

1 2 3 4 5 6 7 8

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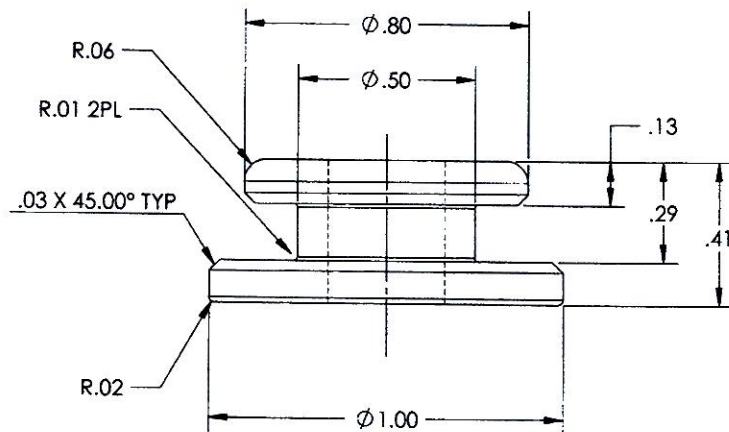
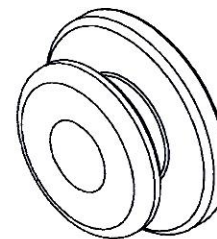
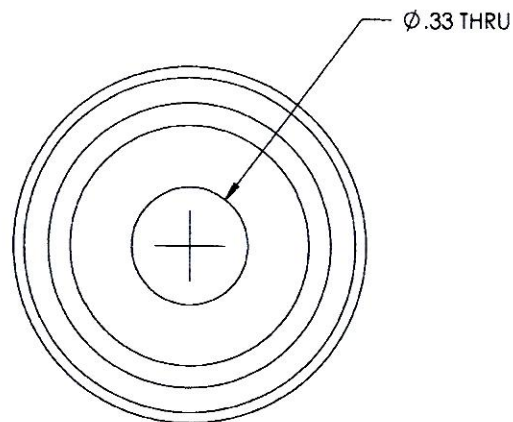


644.4118
WASHER, NYLON

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ORIGINAL DATE 1960-01-15	08-01-05	APICAL INDUSTRIES	
DRAWN BY J. JOSEPH	08-01-05	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL J. JOSEPH 08-29-05		PIVOT STEP ASSY	
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS ±.003 2 PLACE DECIMALS ±.010 ANGLES ±.5°	SIZE B	CAGE CODE 07M16	DWG. NO. 644.4100
		SCALE NONE	SHEET 10 OF 16

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644.4119
SPACER, FWD STOP
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ORIGINAL DATE 08-01-05		APICAL INDUSTRIES	
DRAWN BY CHECKER		2608 TEMPLE HEIGHTS DR.	
DYN INDT LACIAPH		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL		PIVOT STEP ASSY	
1 JOSEPH 08-29-05			
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED		REV	DATE
DIMENSIONS ARE IN INCHES		B	07/26/06
TOLERANCES ARE:		644.4100	
2 PLACE DECIMALS ±.003		F	
3 PLACE DECIMALS ±.010		SCALE NONE	
ANGLES ±.5°		SHEET 1 OF 16	

1 2 3 4 5 6 7 8

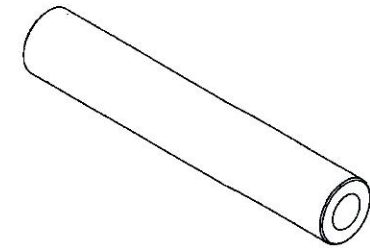
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A

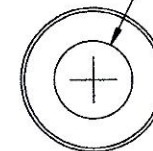
B

C

D



Ø .333 THRU



3.54 $\triangle 7$

Ø .59

Ø .62

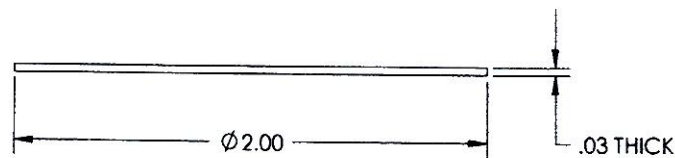
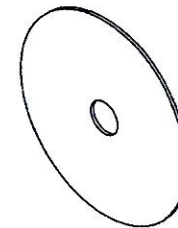
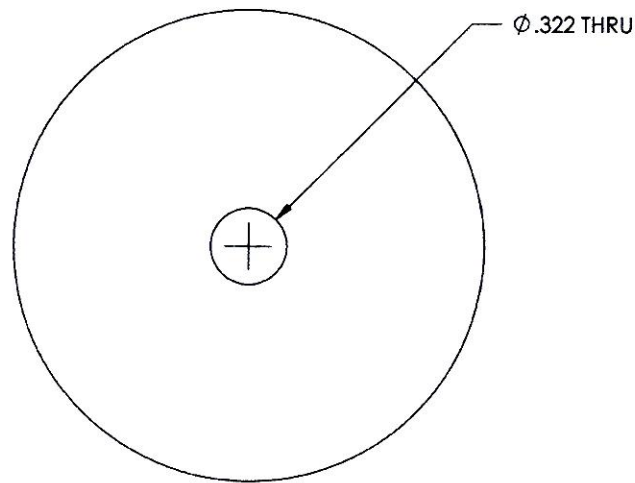
.02 X 45.00°

644.4120
SPACER, CROSS-TUBE

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ORIGINAL DATE 11-02-01-05	08-01-05	APICAL INDUSTRIES	
DRAWN BY D. PARROTT	CHECKED S. JOSEPH	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL S. JOSEPH 08-29-05	PIVOT STEP ASSY		
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .010 ANGLES ± .5°	SHEET B	CAGE CODE 07MZ6	DWG NO. 644.4100
SCALE NONE		SHEET 12 OF 16	

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644.4121

WASHER, NYLON

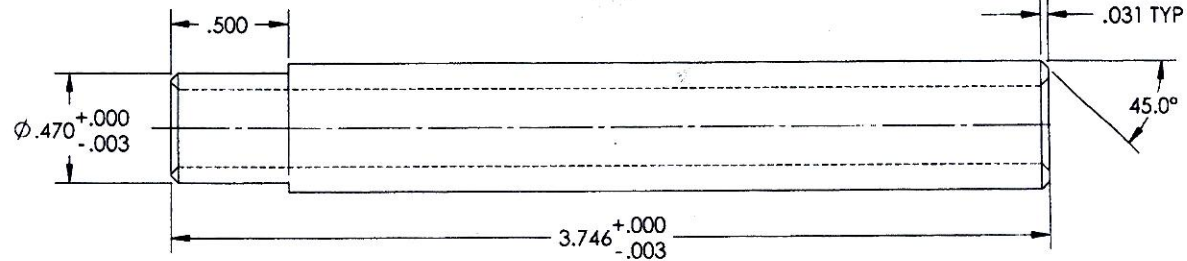
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ORIGINAL DATE 08-01-05		APICAL INDUSTRIES	
DRAWN BY J. JOSEPH		2608 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL S. JOSEPH 08-29-05		OCEANSIDE, CA 92056-3512 (760)724-5300	
CONTRACT NO.		PIVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .005 3 PLACE DECIMALS ± .010 ANGLES ± .5°		SHEET 8	REV. F
SCALE NONE		644.4100	
SHEET 13 OF 16			

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$\phi .550^{+.000}_{-.003}$

$\phi .333$ THRU



644.4122

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ORIGINAL DATE 08-01-05		APICAL INDUSTRIES	
DRAWN BY D. PARSONS		2608 TEMPLE HEIGHTS DR.	
CHECKED J. JOSEPH		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL J. JOSEPH 06-29-05		PIVOT STEP ASSY	
CONTRACT NO.		REV.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SIZE / CAGE CODE	DWG. NO.
2 PLACE DECIMALS .01		B / D7MA26	644.4100
3 PLACE DECIMALS .001		SCALE: NONE	SHEET 14 OF 16
ANGLES .5°			

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$\phi .550^{+.000}_{-.003}$

$\phi .333$ THRU

$\phi .466^{+.000}_{-.003}$

.500

$3.570^{+.000}_{-.003}$

.031 TYP

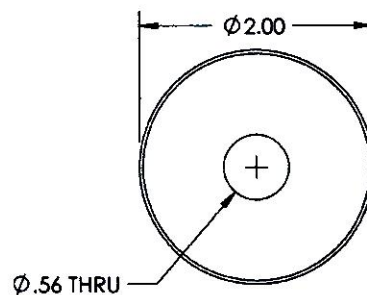
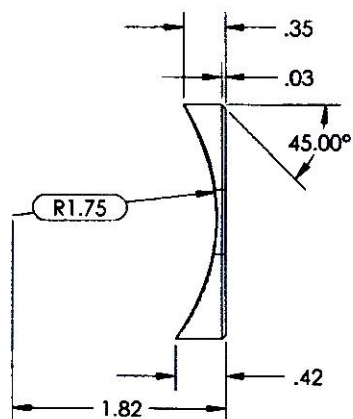
45.0°

644.4123

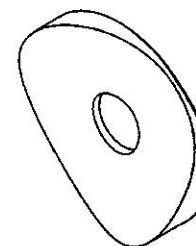
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ORIGINAL DATE 08-01-05		APICAL INDUSTRIES	
DRAWN BY D. PARICOTT		2608 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL S. JOSEPH		OCEANSIDE, CA. 92056-3512 (760)724-5300	
CONTRACT NO.		PIVOT STEP ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .03$ 3 PLACE DECIMALS $\pm .010$ ANGLES $\pm .5^\circ$		SER B	REV. F
SCALE: NONE		CAGE CODE 07M26	DWG. NO. 644.4100
		SHEET 15 OF 16	

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644.4124



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ORIGINAL DATE: 08-01-05		APICAL INDUSTRIES	
DRAWN BY: T. JORDAN		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: T. JORDAN		OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL: 1.0000 08-29-05		PIVOT STEP ASSY	
CONTRACT NO.		REV: 1	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS .005 3 PLACE DECIMALS .001 ANGLES .5°		SHEET: 07/016	DATE: 07/01/06
SCALE: NONE		SHEET 16 OF 16	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO34644

Purchase Order Date 12/15/2016

PO Print Date 12/21/2016

Page Number 4 of 7

Order From :

VC-ATG001

Ship To : DART AEROSPACE LTD

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 613-446-4544

Ship To Contact

Ship To Phone

Ship Via: VENDOR'S TRUCK

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

9	153834	647.7813 CENTER PLATE REV. A	12/22/2016	6.00	\$8.75	\$52.50
---	--------	---------------------------------	------------	------	--------	---------

Yes

12/22/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-PRF-23377J TYPE I CLASS N

Line Total: \$52.50

10	154293	647.4115 SHIM REV. N/C	12/22/2016	10.00	\$6.25	\$62.50
----	--------	------------------------	------------	-------	--------	---------

Yes

12/22/2016

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-PRF-23377J TYPE I CLASS N

Line Total: \$62.50

11	154274	644.4122 BUSHING REV. F2	12/22/2016	7.00	\$4.95	\$34.65
----	--------	-----------------------------	------------	------	--------	---------

Yes

12/22/2016

FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE 3 CLASS 2, COLOR BLACK

Line Total: \$34.65

PO Instructions: PRIMER IS SUPPLIED BY DART

Note:

12/21/2016



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912727

Date: 20-Dec-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
	PLEASE REFERENCE THE PACK LIST NUMBER ON ALL CORRESPONDENCE TO THIS SHIPMENT. IF YOU HAVE ANY QUESTIONS, PLEASE CALL AT (613) 446-4544.		
7 ea	Part: 644.4122 Bushing Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Job: 20512 PO: PO34644	Rev: F2 Line: 11	
7 ea	Part: 644.4120 Spacer Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Job: 20513 PO: PO34644	Rev: F2 Line: 12	
14 ea	Part: 644.4119 Spacer Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Job: 20514 PO: PO34644	Rev: F2 Line: 13	
14 ea	Part: 644.4113 Spacer Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Job: 20515 PO: PO34644	Rev: F2 Line: 14	
14 ea	Part: 644.4112 Spacer Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Job: 20516 PO: PO34644	Rev: F2 Line: 15	
50 ea	Part: D1038-58B Rail Black Anodize per MIL-A-8625F, Type II, Class 2 Job: 20517 PO: PO34644	Rev: B Line: 16	
2	Part: D5046-041	Rev: B	



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 912727

Date: 20-Dec-16

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

CHANTAL LAVOIE
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
ea	Co-pilot Black Anodize per MIL-A-8625F, Type II, Class 2 Job: 20518 PO: PO34644 Line: 17		
DATE : <u>20/12/16</u>			
CERTIFIED SIGNATURE : <u>[Signature]</u>			
RECEIVER SIGNATURE : <u>SP/16-12-21</u>			
Note: This Packing Slip may contain parts that have been PLATED. Items that are plated may be subject to natural tarnishing and it is suggested that they be inspected within 24 hours of receipt. CERTIFICATE OF CONFORMANCE A.T.G. INDUSTRIES INC. CERTIFIES THAT ALL ITEMS IN THIS SHIPMENT CONFORM TO REQUIREMENTS. MADE IN CANADA.			